JC10 Rec'd PCT/PTO 15 MAR 2002

FORM PTO-1390U.S DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE (REV 10-2000) TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371	ATTORNEY'S DOCKET NO 000771.00031 U S APPLICATION NO (If known, See 37 CFR 1 5) TBA 10/088343

INTERNATIONAL APPLICATION NO	INTERNATIONAL FILING DATE	PRIORITY DATE CLAIMED
PCT/NL00/00660	18 September 2000	16 September 1999

TITLE OF INVENTION
METHOD AND APPARATUS FOR TREATING GOODS

APPLICANT(S) FOR DO/EO/US
Antonius L. F. PETERS

Applicant herewith submits to the United State Designated/Elected Office (DO/EO/US) the following items and other information:

1. ☒ This is a FIRST submission of items concerning a filing under 35 U.S.C. 371.
2. ☐ This is a SECOND or SUBSEQUENT submission of items concerning a filing under 35 U.S.C. 371.
3. ☒ This is an express request to promptly begin national examination procedures (35 U.S.C. 371(f)).
4. ☒ The US has been elected by the expiration of 19 months from the priority date (PCT Article 31).
5. ☒ A copy of the International Application as filed (35 U.S.C. 371(c)(2))
   a. ☐ is attached hereto (required only if not communicated by the International Bureau).
   b. ☒ has been communicated by the International Bureau.
   c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US).
6. ☒ An English language translation of the International Application as filed (35 U.S.C. 371 (c)(2).
7. ☒ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3))
   a. ☐ are attached hereto (required only if not communicated by the International Bureau).
   b. ☐ have been communicated by the International Bureau.
   c. ☐ have not been made; however, the time limit for making such amendments has NOT expired.
   d. ☒ have not been made and will not be made.
8. ☐ An English language translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).
9. ☐ An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)).
10. ☒ An English language translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).

Items 11-16 below concern other document(s) or information included:

11. ☒ An Information Disclosure Statement under 37 C.F.R. 1.97 and 1.98.
12. ☐ An Assignment document for recording. A separate cover sheet in compliance with 37 C.F.R. 3.28 and 3.31 is included.
13. ☒ A FIRST preliminary amendment.
    ☐ A SECOND or SUBSEQUENT preliminary amendment.
14. ☐ A substitute specification.
15. ☐ A change of power of attorney and/or address letter.
16. ☒ Other items or information:

    International Search Report (ISA/EPO)

JC10 Rec'd PCT/PTO 15 MAR 2002

U.S. APPLICATION NO (If Known, See 37 CFR 1.5) TBA 10/088343	INTERNATIONAL APPLICATION NO PCT/NL00/00660	ATTORNEY'S DOCKET NO 000771.00031	
		CALCULATIONS	PTO USE ONLY
17. ☒ The following fees are submitted: **Basic National Fee (37 CFR 1.492(a)(1)-(5):**			
Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2) paid to USPTO and International Search Report not prepared by the EPO or JPO	$1,040.00		
International preliminary examination fee (37 CFR 1.482) not paid to USPTO but International Search Report prepared by the EPO or JPO	$890.00		
International preliminary examination fee (37 CFR 1.482) not paid to USPTO but international search fee (37 CFR 1.455(a)(2)) paid to USPTO	$740.00		
International preliminary examination fee paid to USPTO (37 CFR 1.482) but all claims did not satisfy provisions of PCT Article 33(1)-(4)	$710.00		
International preliminary examination fee paid to USPTO (37 CFR 1.482) and all claims satisfied provisions of PCT Article 33(1)-(4)	$100.00		
ENTER APPROPRIATE BASIC FEE AMOUNT =		$890.00	
Surcharge of $130 00 for furnishing the oath or declaration later than ☐ 20 ☐ 30 months from the earliest claimed priority date (37 CFR 1.492(e)		$0.00	

CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE		
Total Claims	20 -20 =	0	X $18.00	$0.00	
Independent Claims	2 - 3 =	0	X $ 84.00	$0.00	
Multiple dependent claims (if applicable)			X $280.00	$0.00	
TOTAL OF ABOVE CALCULATIONS =				$890.00	
☐ Applicant claims small entity status. See 37 CFR 1.27. The fees indicated below above are reduced by 1/2.				$0.00	
SUBTOTAL =				$890.00	
Processing fee of $130.00 for furnishing the English translation later than ☐ 20 ☐ 30 months from the earliest claimed priority date (37 CFR 1.492(f).				$0.00	
TOTAL NATIONAL FEE =				$890.00	
Fee for recording the enclosed assignment (37 CFR 1.21(h). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). $40.00 per property.				$0.00	
TOTAL FEES ENCLOSED =				$890.00	
+				Amount to be: refunded	$
				charged	$

a. ☐ A check in the amount of $_____ to cover the above fees is enclosed.

b. ☒ Please charge my Deposit Account No. 19-0733 in the amount of $890.00 to cover the above fees. A duplicate copy of this sheet is enclosed.

c. ☐ The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. 19-0733. A duplicate copy of this sheet is enclosed.

NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b) must be filed and granted to restore the application to pending status.

SEND ALL CORRESPONDENCE TO:

Banner & Witcoff, Ltd.
Eleventh Floor
1001 G Street, N.W.
Washington, D.C. 20001-4597

Telephone: (202) 508-9100

SIGNATURE

Franklin D. Wolffe
Registration No. 19,724

Date: March 15, 2002

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of:	Atty. Dkt. No.: 000771.00031
Antonius L. F. PETERS	
Serial No.: TBA	U.S. National Stage of
Filed: Herewith	International Application No.:
For: METHOD AND APPARATUS FOR TREATING GOODS	PCT/NL00/00660

PRELIMINARY AMENDMENT

BOX PCT
Commissioner for Patents
Washington, D. C. 20231

Sir:

Prior to examination and calculation of any claim fees, please amend the instant application as follows:

IN THE ABSTRACT:

Following the claims, insert the annexed Abstract.

IN THE SPECIFICATION:

Page 1, after the title of the invention, insert the following section:

CROSS REFERENCE TO RELATED APPLICATIONS:

This is a U.S. National Phase Application under 35 U.S.C. § 371 and applicant herewith claims the benefit of priority of PCT/NL00/00660 filed September 18, 2000, which was published Under PCT Article 21(2) in English, which claims priority to Netherlands Application No. 1013067, filed September 16, 1999, the entire contents of which are incorporated herein by reference.

IN THE CLAIMS:

The claim amendments presented herein are based upon claims 1-17 as amended during prosecution of the PCT application, which amended claims are annexed to the International Preliminary Examination Report.

Annexed hereto is a Marked-Up Version of Amendments Made, as well as a Clean Set of Pending Claims.

Please replace claims 1-5, 7-14, and 16, with the following amended claims:

1. (Amended) Method for treating products wherein the products are placed in a container, are subsequently subjected to impacts through movements of the container and are finally taken out of the container, and wherein the products in the container collide with a substantially flat surface, characterized in that the container executes a reciprocating movement extending over only a part of a revolution of the container.

2. (Amended) Method as claimed in claim 1, characterized in that the products are formed of food products such as meat or fish pieces, that water is introduced into the container and that during the impacts in the container the food products at least partially absorb the water present in the container.

3. (Amended) Method as claimed in claim 1, characterized in that products from a single transport container are placed in groups in the container, are treated and are placed from the container into a single transport container.

4. (Amended) Method as claimed in claim 1, characterized in that the container on an end of a movement frame is placed into the movement frame, that the movement frame is suitable for containing more than one container, that the movement frame is drivable to execute a recurring movement and that simultaneously with placing of a container at one end a container is removed from the movement frame at the other side.

5. (Amended) Device for treating products, comprising a container which is movable on a substantially horizontal rotation axis, at least two substantially flat collision surfaces which are arranged in the container such that when the recurring movement of the container is executed, the products placed in the container repeatedly strike at least one collision surface, and a drive device to cause the container to execute a recurring movement, characterized in that two collision surfaces are arranged in the container which are placed symmetrically relative to the axis of rotation, that the container is opened on its upper side, and that the drive device is adapted to cause the container to repeatedly execute a part of a revolving reciprocating movement with extreme position at each end of the reciprocating movement.

7. (Amended) Device as claimed in claim 5, characterized in that the drive device comprises a crank or eccentric which is drivable by a motor and which is coupled to the container by means of a drive rod.

8. (Amended) Device as claimed in claim 5, characterized in that the drive device and the container are adapted to hold a liquid in the extreme positions of the container.

9. (Amended) Device as claimed in claim 5, characterized in that the container is adapted to treat effectively a quantity of products corresponding with the useful capacity of a transport container usual for transporting the products to be subjected to treatment.

10. (Amended) Device as claimed in claim 5, characterized in that the container is placed removably on carriers arranged in a frame, wherein the frame is drivable for the recurring movement.

11. (Amended) Device as claimed in claim 10, characterized in that the carriers are adapted to carry at least two containers.

12. (Amended) Device as claimed in claim 11, characterized in that the carries are

connected to at least two elements extending in a circular arc which are driven in accordance with the reciprocating movement.

13. (Amended) Device as claimed in claim 10, characterized in that a cover for the containers is arranged in the frame and that the carriers are movable toward the cover.

14. (Amended) Device as claimed in claim 11, characterized in that supply means are arranged on one side of the frame for supplying containers and discharge means are arranged on the other side of the frame for discharging the containers.

16. (Amended) Device as claimed in claim 14, characterized in that discharge means for the containers are connected to an unloading device and that a loading device is connected to the supply means.

18. (New) Device as claimed in claim 11, characterized in that a cover for the containers is arranged in the frame and that the carriers are movable toward the cover.

19. (New) Device as claimed in claim 12, characterized in that supply means are arranged on one side of the frame for supplying containers and discharge means are arranged on the other side of the frame for discharging the containers.

20. (New) Device as claimed in claim 13, characterized in that supply means are arranged on one side of the frame for supplying containers and discharge means are arranged on the other side of the frame for discharging the containers.

REMARKS

By this amendment, an Abstract has been inserted and multiple dependencies have been eliminated from the claims.

The claim amendments presented herein are based upon claims 1-17 as amended during prosecution of the PCT application, which amended sheets are annexed to the International Preliminary Examination Report.

Annexed hereto is a **Marked-Up Version of Amendments Made** in the instant amendment. A **Clean Set of Pending Claims** is also annexed hereto to aid the Examiner during initial examination of the instant application.

Examination on the merits of the instant application is respectfully requested.

Respectfully submitted,

Date: March 15, 2002

Franklin D. Wolffe
Reg. No. 19,724

Banner & Witcoff, Ltd.
1001 G Street, N.W.
Washington, D. C. 20001-4597
(202) 508-9100

Attachment:

1. Marked-Up Version of Amendments Made
2. Abstract of the Disclosure
3. Clean Set of Pending Claims

FDW:lab

Marked-Up Version of Amendments Made

IN THE CLAIMS:

Claims 1-5, 7-14, and 16, have been amended herein as follows:

1. (Amended) Method for treating products ~~wherein the products are subjected to impacts,~~ wherein the products are placed in a container, are subsequently subjected to impacts through movements of the container and are finally taken out of the container, and wherein the products in the container collide with a substantially flat surface, characterized in that the container executes a reciprocating movement extending over only a part of a revolution of the container.

2. (Amended) Method as claimed in claim 1, characterized in that the products are formed ~~by~~ of food products such as meat or fish pieces, that water is introduced into the container and that during the ~~jolting~~ impacts in the container the food products at least partially absorb the water present in the container.

3. (Amended) Method as claimed in claim 1 ~~or 2~~, characterized in that products from a single transport container are placed in groups in the container, are treated and are placed from the container into a single transport container.

4. (Amended) Method as claimed in ~~any of the foregoing claims~~claim 1, characterized in that the container on an end of a movement frame is placed into the movement frame, that the movement frame is suitable for containing more than one container, that the movement frame is drivable to execute a recurring movement and that simultaneously with placing of a container at one end a container is removed from the movement frame at the other side.

5. (Amended) Device for treating products, comprising a container which is movable on a substantially horizontal rotation axis, at least two substantially flat collision surfaces which are

Marked-Up Version of Amendments Made

arranged in the container such that when the recurring movement of the container is executed, the products placed in the container repeatedly strike at least one collision surface, and a drive device to cause the container to execute a recurring movement, characterized in that two collision surfaces are arranged in the container which are placed symmetrically relative to the axis of rotation, that the container is opened ~~ont~~ on its upper side, and that the drive device is adapted to cause the container to repeatedly execute a part of a revolving reciprocating movement with extreme position at each end of the reciprocating movement.

7. (Amended) Device as claimed in claims 5 ~~or 6~~, characterized in that the drive device comprises a crank or eccentric which is drivable by a motor and which is coupled to the container by means of a drive rod.

8. (Amended) Device as claimed in ~~any of the claims 5-7~~ claim 5, characterized in that the drive device and the container are adapted to hold a liquid in the extreme positions of the container.

9. (Amended) Device as claimed in ~~any of the claims 5-8~~claim 5, characterized in that the container is adapted to treat effectively a quantity of products corresponding with the useful capacity of a transport container usual for transporting the products to be subjected to treatment.

10. (Amended) Device as claimed in ~~any of the claims 5-9~~claim 5, characterized in that the container is placed removably on carriers arranged in a frame, wherein the frame is drivable for the recurring movement.

11. (Amended) Device as claimed in ~~any of the claims 5-10~~claim 10, characterized in that the carriers are adapted to carry at least two containers.

[redacted]

Marked-Up Version of Amendments Made

12. (Amended) Device as claimed in ~~any of the claims 5-11~~claim 11, characterized in that the carries are connected to at least two elements extending in a circular arc which are driven in accordance with the reciprocating movement.

13. (Amended) Device as claimed in ~~claims 9-12~~claim 10, characterized in that a cover for the containers is arranged in the frame and that the carriers are movable toward the cover.

14. (Amended) Device as claimed in claim 11, ~~12 or 13,~~ characterized in that supply means are arranged on one side of the frame for supplying containers and discharge means are arranged on the other side of the frame for discharging the containers.

16. (Amended) Device as claimed in claim 14 ~~or 15~~, characterized in that discharge means for the containers are connected to an unloading device and that a loading device is connected to the supply means.

18. (New) Device as claimed in claim 11, characterized in that a cover for the containers is arranged in the frame and that the carriers are movable toward the cover.

19. (New) Device as claimed in claim 12, characterized in that supply means are arranged on one side of the frame for supplying containers and discharge means are arranged on the other side of the frame for discharging the containers.

20. (New) Device as claimed in claim 13, characterized in that supply means are arranged on one side of the frame for supplying containers and discharge means are arranged on the other side of the frame for discharging the containers.

ABSTRACT OF THE DISCLOSURE

The invention relates to a method for treating food products wherein the food products are subjected to impacts, wherein the food products are placed in a container (1), are subsequently subjected to impacts through movements of the container and are finally taken out of the container. Device for treating food products, comprising: a container (1) which is movable on a horizontal rotation axis and which is opened on its upper side, and a drive device to cause the container to execute a reciprocating movement, wherein the container is placed at least one collision surface (4.5) which is arranged such that when the reciprocating movement of the container is executed the bodies placed in the container repeatedly strike the at least one collision surface. The food products are preferably formed by meat or fish pieces, and water is introduced into the container so that during the jolting in the container the food products at least partially absorb the water present in the container. These measures result in an improvement in the tenderness of the meat.

Clean Set of Pending Claims

1. (Amended) Method for treating products wherein the products are placed in a container, are subsequently subjected to impacts through movements of the container and are finally taken out of the container, and wherein the products in the container collide with a substantially flat surface, characterized in that the container executes a reciprocating movement extending over only a part of a revolution of the container.

2. (Amended) Method as claimed in claim 1, characterized in that the products are formed of food products such as meat or fish pieces, that water is introduced into the container and that during the impacts in the container the food products at least partially absorb the water present in the container.

3. (Amended) Method as claimed in claim 1, characterized in that products from a single transport container are placed in groups in the container, are treated and are placed from the container into a single transport container.

4. (Amended) Method as claimed in claim 1, characterized in that the container on an end of a movement frame is placed into the movement frame, that the movement frame is suitable for containing more than one container, that the movement frame is drivable to execute a recurring movement and that simultaneously with placing of a container at one end a container is removed from the movement frame at the other side.

5. (Amended) Device for treating products, comprising a container which is movable on a substantially horizontal rotation axis, at least two substantially flat collision surfaces which are arranged in the container such that when the recurring movement of the container is executed, the products placed in the container repeatedly strike at least one collision surface, and a drive device to cause the container to execute a recurring movement, characterized in that two collision surfaces are arranged in the container which are placed symmetrically relative to the axis of rotation, that the container is opened on its upper side, and that the drive device is adapted

Clean Set of Pending Claims

to cause the container to repeatedly execute a part of a revolving reciprocating movement with extreme position at each end of the reciprocating movement.

6. Device as claimed in claim 5, characterized in that a holding surface is arranged connecting onto each of the collision surfaces, wherein the holding surfaces are symmetrical relative to the axis of rotation, the holding surfaces intersect at an angle lying between 90° and 135°, and that the axis of rotation of the movement lies below the intersecting line of the holding surfaces.

7. (Amended) Device as claimed in claim 5, characterized in that the drive device comprises a crank or eccentric which is drivable by a motor and which is coupled to the container by means of a drive rod.

8. (Amended) Device as claimed in claim 5, characterized in that the drive device and the container are adapted to hold a liquid in the extreme positions of the container.

9. (Amended) Device as claimed in claim 5, characterized in that the container is adapted to treat effectively a quantity of products corresponding with the useful capacity of a transport container usual for transporting the products to be subjected to treatment.

10. (Amended) Device as claimed in claim 5, characterized in that the container is placed removably on carriers arranged in a frame, wherein the frame is drivable for the recurring movement.

11. (Amended) Device as claimed in claim 10, characterized in that the carriers are adapted to carry at least two containers.

Clean Set of Pending Claims

12. (Amended) Device as claimed in claim 11, characterized in that the carries are connected to at least two elements extending in a circular arc which are driven in accordance with the reciprocating movement.

13. (Amended) Device as claimed in claim 10, characterized in that a cover for the containers is arranged in the frame and that the carriers are movable toward the cover.

14. (Amended) Device as claimed in claim 11, characterized in that supply means are arranged on one side of the frame for supplying containers and discharge means are arranged on the other side of the frame for discharging the containers.

15. Device as claimed in claim 14, characterized in that the drive device is adapted to cause the reciprocating movement of the frame to stop during supply and discharge of the containers.

16. (Amended) Device as claimed in claim 14, characterized in that discharge means for the containers are connected to an unloading device and that a loading device is connected to the supply means.

17. Device as claimed in claim 16, characterized in that the unloading device is connected to the loading device.

18. (New) Device as claimed in claim 11, characterized in that a cover for the containers is arranged in the frame and that the carriers are movable toward the cover.

19. (New) Device as claimed in claim 12, characterized in that supply means are arranged on one side of the frame for supplying containers and discharge means are arranged on the other side of the frame for discharging the containers.

Clean Set of Pending Claims

20. (New) Device as claimed in claim 13, characterized in that supply means are arranged on one side of the frame for supplying containers and discharge means are arranged on the other side of the frame for discharging the containers.

METHOD AND APPARATUS FOR TREATING GOODS

The invention relates to a method for treating products wherein the products are subjected to impacts, wherein the products are placed in a container, are subsequently subjected to impacts through movements of the container and then taken out of the container.

Such a method forms the subject-matter of the non-prepublished WO-A-99/63832.

This device is adapted for the treatment of meat pieces. The meat pieces placed in the container are carried along by the structures present in the container when the container is rotated. When a determined position has been reached the meat pieces drop off the structure and fall onto the then lowest container wall part. Structures are however also arranged on this container wall part. These structures at least partially negate the results of the fall during the collision with the container wall.

The object of the invention is to provide such a method wherein the result of the fall, i.e. the collision between the products and the container wall, is as great as possible.

The objective is achieved in that the products in the container collide with a substantially flat surface.

Because the products come into contact with the container wall with their whole surface, a larger part of the products undergoes the effect of the collision, so that the effectiveness is greatly increased.

A flat surface is also understood to mean for instance a slightly curved or ribbed surface.

It is noted here that it is of course known from the trade for a butcher to treat meat pieces for instance by hand, wherein the butcher strikes the meat piece with the blunt or flat side of a knife to make the

meat piece more tender. It will be apparent that the capacity will be extremely low in the case of this traditional trade method. This limits the field of application to expensive food products, for instance meat of high quality such as rump steak.

Although the invention is aimed in the first instance at the application with food products, other applications are by no means precluded. Applications can be envisaged in for instance the laundry industry. The cleaning effect is here also greatly enhanced when the collision surface is as large as possible.

According to a first preferred embodiment the products are formed by meat or fish pieces and water is introduced into the container so that during the impacts in the container the products at least partially absorb the water present in the container.

These measures result in an improvement in the tenderness of the meat or the fish; the greater the collision surface, the better the absorption of water. Water is also understood to mean other water-containing liquids such as brine etc.

According to another preferred embodiment the products from a single transport container are placed in groups in the container, are treated and are placed from the container into a single transport container.

This method has the advantage that the content of a transport container fits precisely into a container in which the products are subjected to a treatment. The logistical advantage hereof is evident. Another advantage is that the content of a transport container does not come into contact with the content of other containers, so that cross-infection is prevented, particularly in the case of foodstuffs. A final advantage lies in the fact that a batch of products, i.e. the content of a transport container, is traceable. This is of great importance in respect of future legislation concerning foodstuffs. The treatment of small batches is also easier than in more of a bulk container.

This embodiment has the further advantage that a quantity of water or other water-containing liquid can be added to the batch. The device is found to be so effective that the available liquid is already fully absorbed by the products after only a short time. A prescribed quantity of liquid can hereby be administered more easily in reproducible manner.

The invention further relates to a method wherein the container on an end of a movement frame is placed into the movement frame, that the movement frame is suitable for containing more than one container, that the movement frame is drivable to execute a recurring movement and that simultaneously with placing of a container at one end a container is removed from the movement frame at the other side.

This embodiment also improves the logistical properties of the method; the containers can be simply shifted through.

The invention further relates to a device for treating products, comprising:

- a container which is movable on a substantially horizontal rotation axis and which is open on its upper side, and
- a drive device to cause the container to execute a recurring movement.

Such a device also forms the subject of WO-A-99/63832.

The same drawbacks obtain for the device described in this publication as for the method described in this publication.

In order to make such a device more effective in subjecting its content to impacts, such a device is characterized in that in the container is placed at least one flat collision surface which is arranged such that when the recurring movement of the container is executed the bodies placed in the container repeatedly strike the at least one collision surface.

According to an attractive preferred embodiment there are two collision surfaces arranged in the container which are placed symmetrically relative to the axis of rotation, and the drive device is adapted to cause the container to repeatedly execute a part of a revolving movement.

This results in a structurally attractive embodiment which, when included in a line for treating products, can be readily adapted to the requirements such as flow rate, dimensions of containers and the like of the remaining components of the line.

According to a particularly attractive embodiment, a holding surface is arranged connecting onto each of the collision surfaces, wherein the holding surfaces are placed symmetrically relative to the axis of rotation, the holding surfaces intersect at an angle lying between 90° and 150°, and the axis of rotation of the movement lies below the intersecting line of the holding surfaces.

This geometry has the result that firstly the products fall freely without contacting the walls by which the fall could be slowed, and that secondly the products not only drop straight downward but, if the drive velocity is sufficient, they cover an oblique, even slightly curved trajectory due to the impulse transmitted to the products during the movement. This greatly increases the collision speed.

The placing of the containers in the frame has the effect that the containers are subjected in groups to the recurring reciprocating movement. The fact that the containers are fed in at one side and discharged at the other side makes it possible to create a continuous system. Loading and unloading devices for the containers can be incorporated into this continuous system. The empty containers coming from the unloading device can be loaded again in the loading station, optionally after passing through a cleaning station.

Other attractive preferred embodiments are stated in the remaining sub-claims.

The present invention will be elucidated hereinbelow with reference to the annexed figures, in which:

figure 1 shows a schematic perspective view of a first embodiment of the present invention;

figure 2 is a partly broken-away perspective view of the container shown in figure 1;

figure 3 is a cross-sectional view of the container shown in figure 1;

figure 4 shows a perspective schematic view of a second embodiment of the present invention; and

figure 5 is a detail view of the device shown in figure 4.

The device for use in performing the method according to the present invention is shown in figure 1. This is formed essentially by a container 1 which is mounted tiltably on a shaft 2. Placed for this purpose on shaft 2 is a block 3 to which container 1 is attached.

Container 1 is formed essentially by two side plates 4 respectively 5, and two bottom plates 6,7 which are shown most clearly in figure 2. The two bottom plates enclose an angle of about 135°. Container 1 further comprises two end wall plates 8 respectively 9. Two cover plates 10 respectively 11 are further arranged on the upper side, between which plates is left an opening 12.

The whole container is manufactured from a suitable material, preferably stainless steel, for treating foodstuffs or products taken up in water.

In the embodiment shown in figure 1, the shaft 2 is mounted in two bearing blocks, only one of which, 13, is visible. Mounted on shaft 2 is a crank 14 which is connected by means of a drive rod 15 to a crank 16. Crank 16 is mounted on a disc 17 which is driven in rotation by an electric motor 18 and a reduction mechanism 19.

The dimensioning of cranks 14 respectively 16 and drive rod 15 is such that when disc 17 rotates the

shaft 2 executes a recurring, reciprocating movement. The movement corresponds with a rotation through an angle of about 120°. It is anticipated that angles lying between 90° and 135° give a good result. Tests have shown that an angle of 120° gives exceptionally good results. The choice of this angle can in principle also be somewhat larger, for instance even 140° or 150°.

Reference is made to figure 2 for the operation of the device and the effects of the method.

Prior to performing the method, material for treating, for instance meat pieces 20 such as fillets, are carried into container 1 via filling opening 12.

Starting from a neutral position of the container, these fillet pieces will come to lie on the bottom. Motor 18 is then switched on, whereby the container will begin to execute its tilting movement on the shaft. When the position shown in figure 2 is reached, the meat pieces will drop off bottom plate 7 onto side plate 4. This side plate 4 therefore performs the function of collision surface.

When the container moves back the meat pieces will slide along the collision surface 4 onto bottom plate 6 and, upon arrival at the other extreme position, which forms the mirror image of the position shown in figure 2, the meat pieces 20 will drop off the bottom onto side plate 5 which here fulfils the function of collision surface. It is essential here that the bottom surface 7 is placed vertically.

The thus described process can be repeated a great number of times. It is important herein that the meat pieces are regularly struck by a collision surface, thereby increasing their tenderness.

According to another method, the striking of the meat pieces is used to cause the meat to absorb a liquid. Water, brine and so on can be envisaged here. This also has the function of improving the quality of the meat. For this purpose the relevant liquid is introduced into container 1 prior to or subsequent to

infeed of the meat pieces, whereafter the same tilting operations are performed. The meat is herein treated such that it slowly absorbs the available liquid.

Of significance here is the fact that the quantity of brine or other liquid absorbed by the meat can be determined precisely, which is important in assessing the effectiveness of the device. Furthermore, the absorption of the brine by the meat can hereby be precisely determined.

The above embodiment is described with reference to the treatment of meat. It will be apparent that other products and materials can also be treated, such as laundry for cleaning.

A significant advantage compared to the prior art devices is the fact that a relatively large number of small quantities of meat can be treated simultaneously.

Figure 3 shows a further embodiment of a device according to the invention. Separate containers 1 are herein placed in a frame 21 as shown in figure 4 which is driven in its entirety for execution of the tilting movement. Frame 21 is formed by two rings 22 respectively 23 which rest on rollers 24. Rings 22,23 are connected by side rails 25, on which can rest wheels 26 connected to the containers.

Containers 1 are placed successively with their wheels 26 on rails 25, whereafter they can be displaced in the axial direction as further new containers are placed.

The geometry of the containers is shown in this drawing; it will be apparent that other geometries can be applied, although at present the illustrated geometry is recommended. It is important that the products for treatment release from the wall 6 or 7 shortly before reaching an extreme position and drop freely to the other wall 6 or 7. Because of the dynamics of the movement the other wall will already be making a movement in the opposite direction, which increases the effect of the impulse of the collision. The speed of the drive is also

important in imparting a 'swing' to the falling products; this also increases the effect of the collision.

As shown in figure 4, use is made for driving of the tilting movement of a connecting rail 27 between rings 22,23. The rail 27 is connected to a crank 29 mounted on a shaft 28 by means of a U-shaped lever 30. The U-shape of lever 30 results from the wish not to disrupt the transport of containers 1 in the axial direction.

The opening 12 on the top side of the container is closed by a cover 32.

Such a device is for instance suitable for subjecting six containers simultaneously to a recurring movement. A container is herein subjected to the tilting movement for instance for six periods of for instance one minute each. Although this is not shown in the drawing, it is possible to move the ring 25 upward. The containers can hereby be pushed against covers arranged in the frame.

In order to move the rail upward, use is preferably made of a flexible rod which can be filled with a gas and which then moves toward the rails of the cover. Other drives are also possible.

This means that a high meat-processing capacity is sustained with batches of manageable size; this means that a single person can load a container, place it on the rack, remove a subsequent container and empty it. The tilting movement will of course have to stopped for placing and removal of containers.

Figures 4 and 5 also show a construction 33 which bears some resemblance to the frame 21. The object of this construction is to tilt the containers in order to empty them. This construction therefore comprises two rings 34,35 which are connected by rails 36 on which the wheels 26 of containers 1 can travel. The rails are however formed such that the wheels also hold the containers in the tilted situation. For driving of the construction use is made of a gear rim 37 which is

arranged on ring 34 and which is in engagement with a pinion 40 arranged on a shaft 38 of motor 39.

Figure 5 shows the further elements of a device operating in fully automated manner. The device comprises an inclining supply frame 41 with integrated rails which leads to frame 21. Arranged above the position immediately preceding the frame is a crane 42 for optional supply of a liquid to the content of the containers.

The containers coming out of the frame are moved obliquely upward to the unloading device 33 via a crossbeam 43. The containers leaving the unloading device are fed via a discharge frame 44 to a feed hopper 45, where the containers are filled with products for treatment. A cleaning device for the containers can be incorporated into discharge frame 44.

Finally, a second crossbeam 46 of the filling device 45 leads to the inclining supply frame.

It will be apparent that further diverse modifications can be made in this device.

*****

G/XS58/MvZ/3 PCT/NL00/00660

NEW CLAIMS

1. Method for treating products wherein the products are subjected to impacts, wherein the products are placed in a container, are subsequently subjected to impacts through movements of the container and are finally taken out of the container, wherein the products in the container collide with a substantially flat surface, **characterized in that** the container executes a reciprocating movement extending over only a part of a revolution of the container.

2. Method as claimed in claim 1, **characterized in that** the products are formed by food products such as meat or fish pieces, that water is introduced into the container and that during the jolting in the container the food products at least partially absorb the water present in the container.

3. Method as claimed in claim 1 or 2, **characterized in that** products from a single transport container are placed in groups in the container, are treated and are placed from the container into a single transport container.

4. Method as claimed in any of the foregoing claims, **characterized in that** the container on an end of a movement frame is placed into the movement frame, that the movement frame is suitable for containing more than one container, that the movement frame is drivable to execute a recurring movement and that simultaneously with placing of a container at one end a container is removed from the movement frame at the other side.

5. Device for treating products, comprising a container which is movable on a substantially horizontal rotation axis, at least two substantially flat collision surfaces which are arranged in the container such that when the recurring movement of the container is executed, the products placed in the container repeatedly strike at

least one collision surface, and a drive device to cause the container to execute a recurring movement, **characterized in that** two collision surfaces are arranged in the container which are placed symmetrically relative to the axis of rotation, that the container is opened ont its upper side, and that the drive device is adapted to cause the container to repeatedly execute a part of a revolving reciprocating movement.

6. Device as claimed in claim 5, **characterized in that** a holding surface is arranged connecting onto each of the collision surfaces, wherein the holding surfaces are symmetrical relative to the axis of rotation, the holding surfaces intersect at an angle lying between 90° and 135°, and that the axis of rotation of the movement lies below the intersecting line of the holding surfaces.

7. Device as claimed in claims 5 or 6, **characterized in that** the drive device comprises a crank or eccentric which is drivable by a motor and which is coupled to the container by means of a drive rod.

8. Device as claimed in any of the claims 5-7, **characterized in that** the drive device and the container are adapted to hold a liquid in the extreme positions of the container.

9. Device as claimed in any of the claims 5-8, **characterized in that** the container is adapted to treat effectively a quantity of products corresponding with the useful capacity of a transport container usual for transporting the products to be subjected to treatment.

10. Device as claimed in any of the claims 5-9, **characterized in that** the container is placed removably on carriers arranged in a frame, wherein the frame is drivable for the recurring movement.

11. Device as claimed in any of the claims 5-10, **characterized in that** the carriers are adapted to carry at least two containers.

12. Device as claimed in any of the claims

5-11, **characterized in that** the carriers are connected to at least two elements extending in a circular arc which are driven in accordance with the reciprocating movement.

13. Device as claimed in claims 9-12, **characterized in that** a cover for the containers is arranged in the frame and that the carriers are movable toward the cover.

14. Device as claimed in claim 11, 12 or 13, **characterized in that** supply means are arranged on one side of the frame for supplying containers and discharge means are arranged on the other side of the frame for discharging the containers.

15. Device as claimed in claim 14, **characterized in that** the drive device is adapted to cause the reciprocating movement of the frame to stop during supply and discharge of the containers.

16. Device as claimed in claim 14 or 15, **characterized in that** discharge means for the containers are connected to an unloading device and that a loading device is connected to the supply means.

17. Device as claimed in claim 16, **characterized in that** the unloading device is connected to the loading device.

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
22 March 2001 (22.03.2001)

PCT

(10) International Publication Number
WO 01/19196 A2

(51) International Patent Classification[7]: A22C 9/00

(21) International Application Number: PCT/NL00/00660

(22) International Filing Date:
18 September 2000 (18.09.2000)

(25) Filing Language: Dutch

(26) Publication Language: English

(30) Priority Data:
1013067 16 September 1999 (16.09.1999) NL

(71) Applicant *(for all designated States except US)*: **PROVAL BEHEER B.V.** [NL/NL]; De Weegschaal 7, NL-5215 MN 's-Hertogenbosch (NL).

(72) Inventor; and

(75) Inventor/Applicant *(for US only)*: **PETERS, Antonius, Leonardus, Franciscus** [NL/NL]; Hezelaar 4, NL-5271 SK St. Michielsgestel (NL).

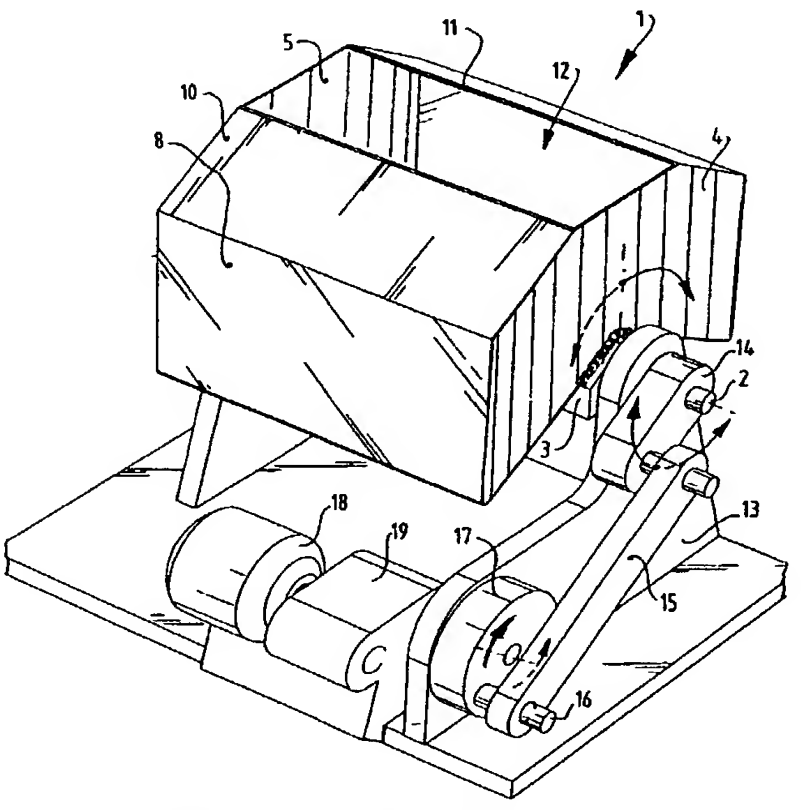
(74) Agent: **EVELEENS MAARSE, Pieter**; Arnold & Siedsma, Sweelinckplein 1, NL-2517 GK The Hague (NL).

(81) Designated States *(national)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.

(84) Designated States *(regional)*: ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian

[Continued on next page]

(54) Title: METHOD AND APPARATUS FOR TREATING GOODS



(57) Abstract: The invention relates to a method for treating food products wherein the food products are subjected to impacts, wherein the food products are placed in a container, are subsequently subjected to impacts through movements of the container and are finally taken out of the container. Device for treating food products, comprising: a container which is movable on a horizontal rotation axis and which is opened on its upper side, and a drive device to cause the container to execute a reciprocating movement, wherein the container is placed at least one collision surface which is arranged such that when the reciprocating movement of the container is executed the bodies placed in the container repeatedly strike the at least one collision surface. The food products are preferably formed by meat or fish pieces, and water is introduced into the container so that during the jolting in the container the food products at least partially absorb the water present in the container. These measures result in an improvement in the tenderness of the meat.

WO 01/19196 A2

patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published:

— *Without international search report and to be republished upon receipt of that report.*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

FIG.1

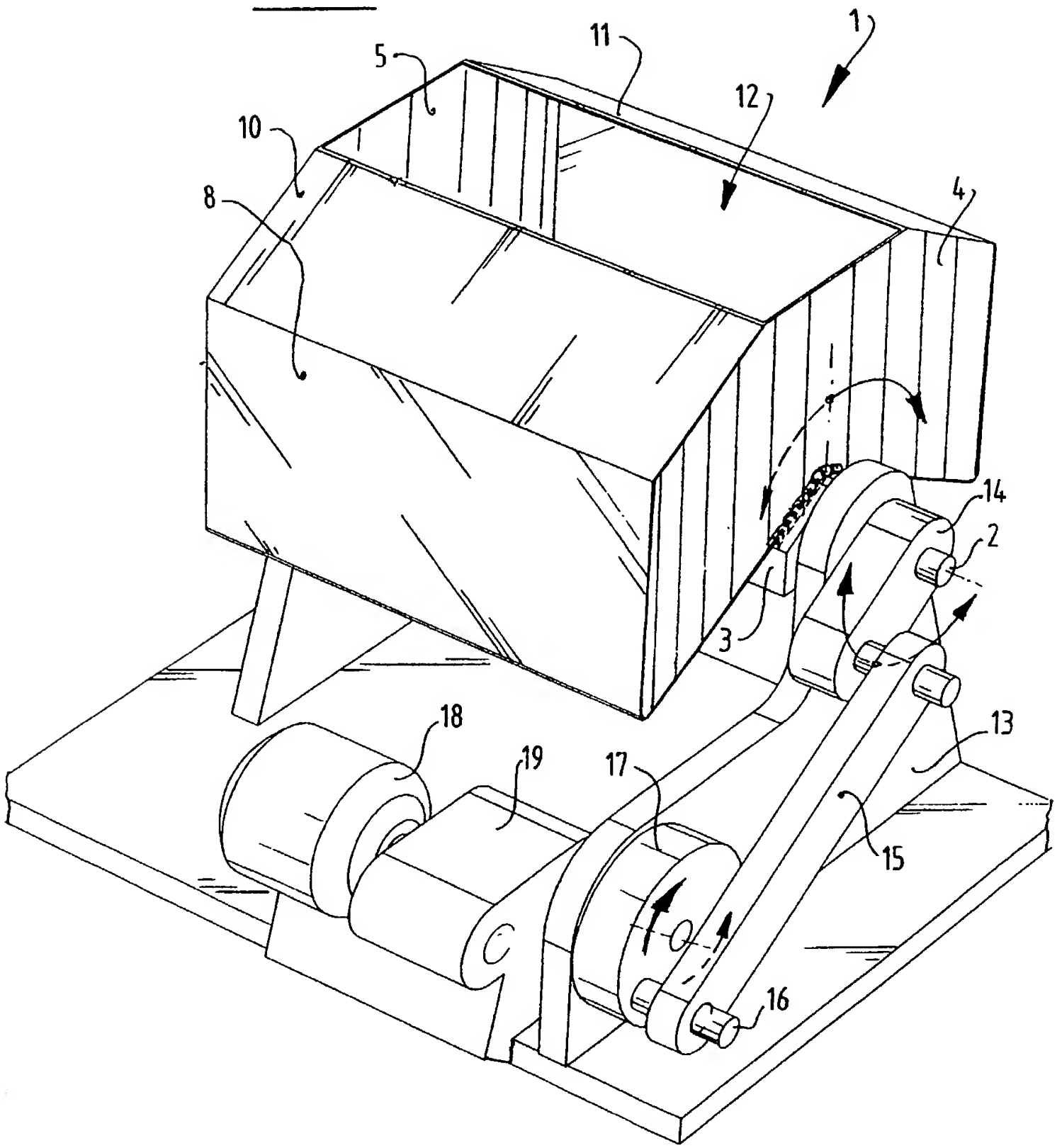
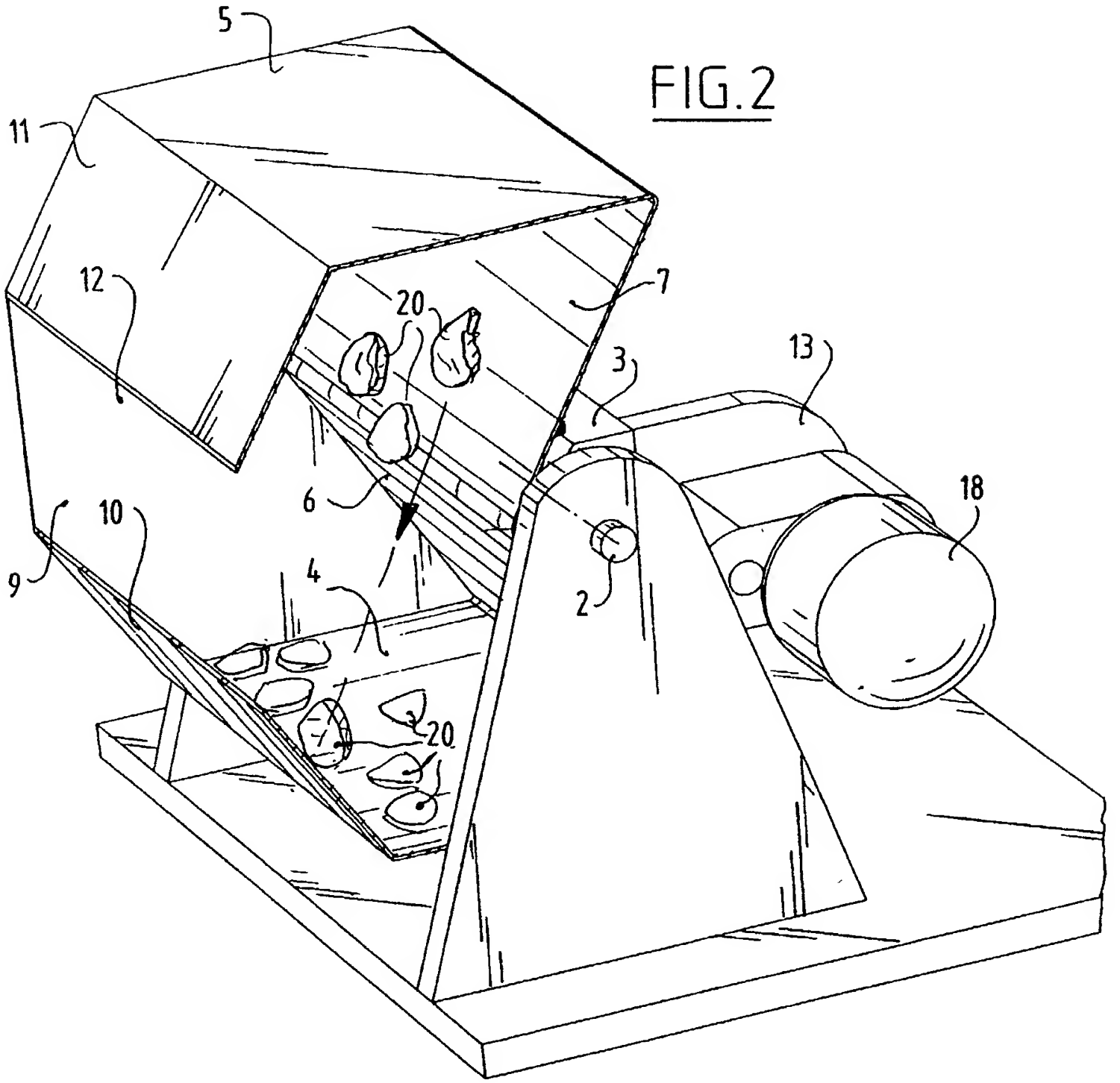


FIG.2



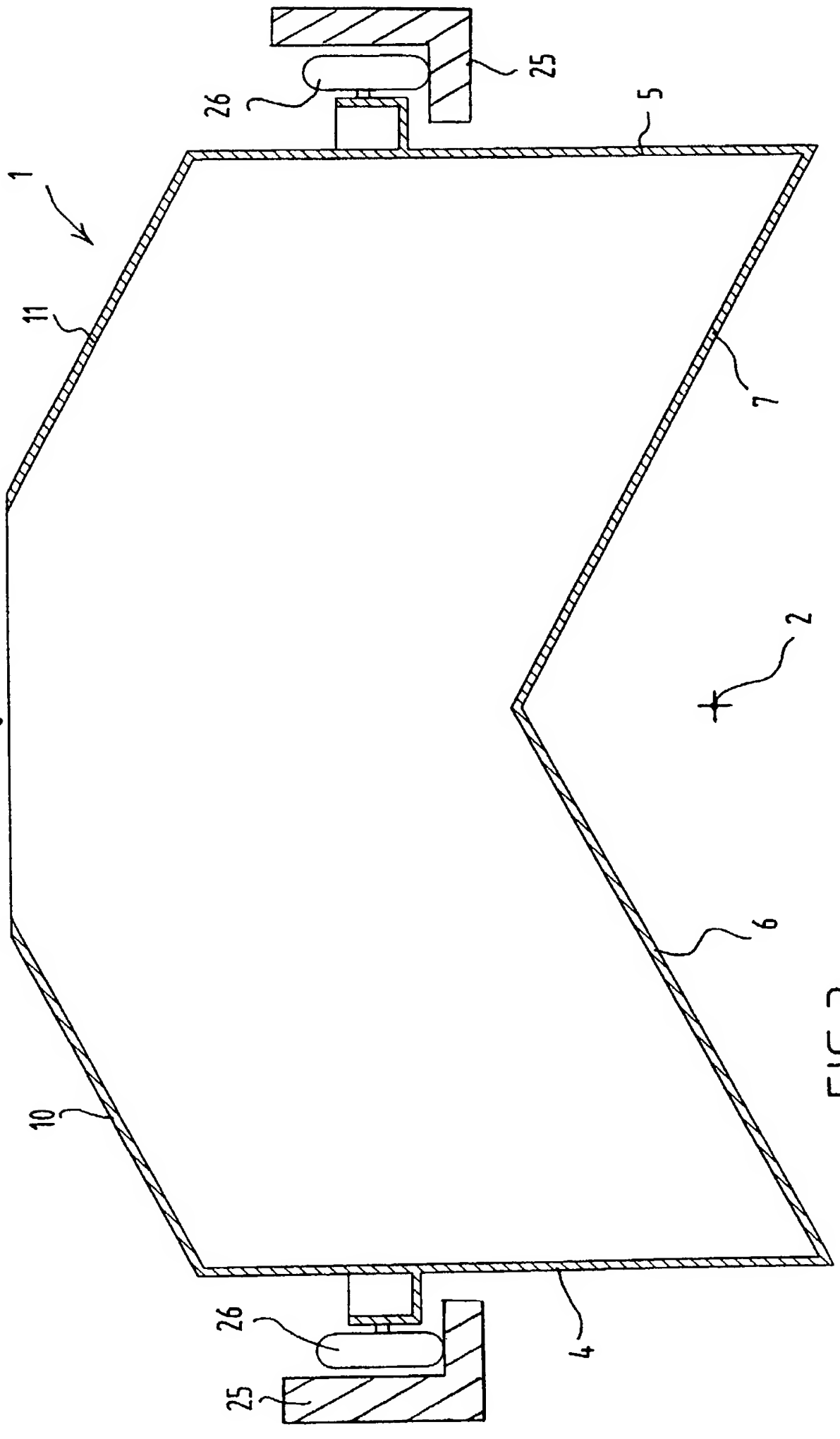


FIG.3

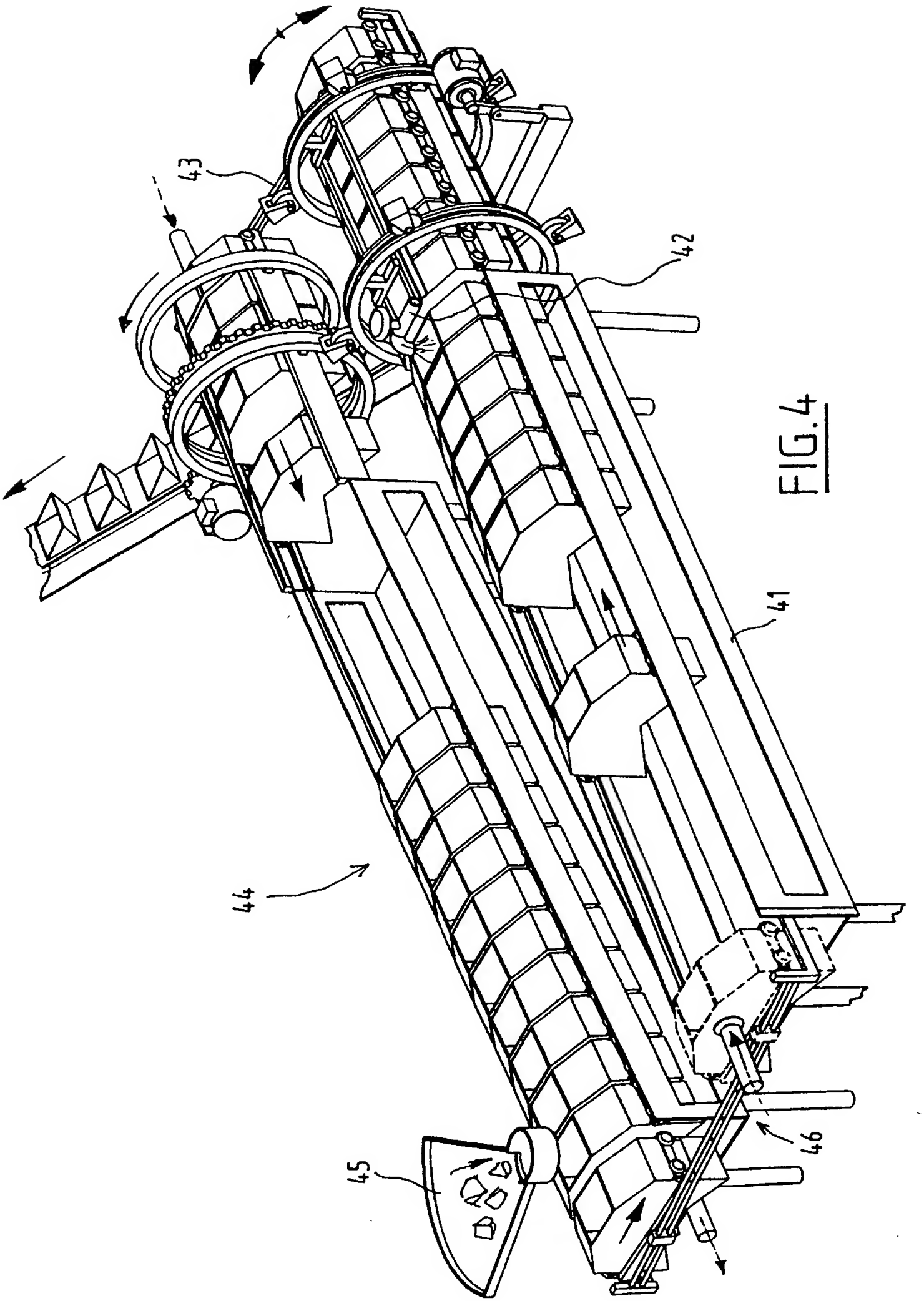


FIG.4

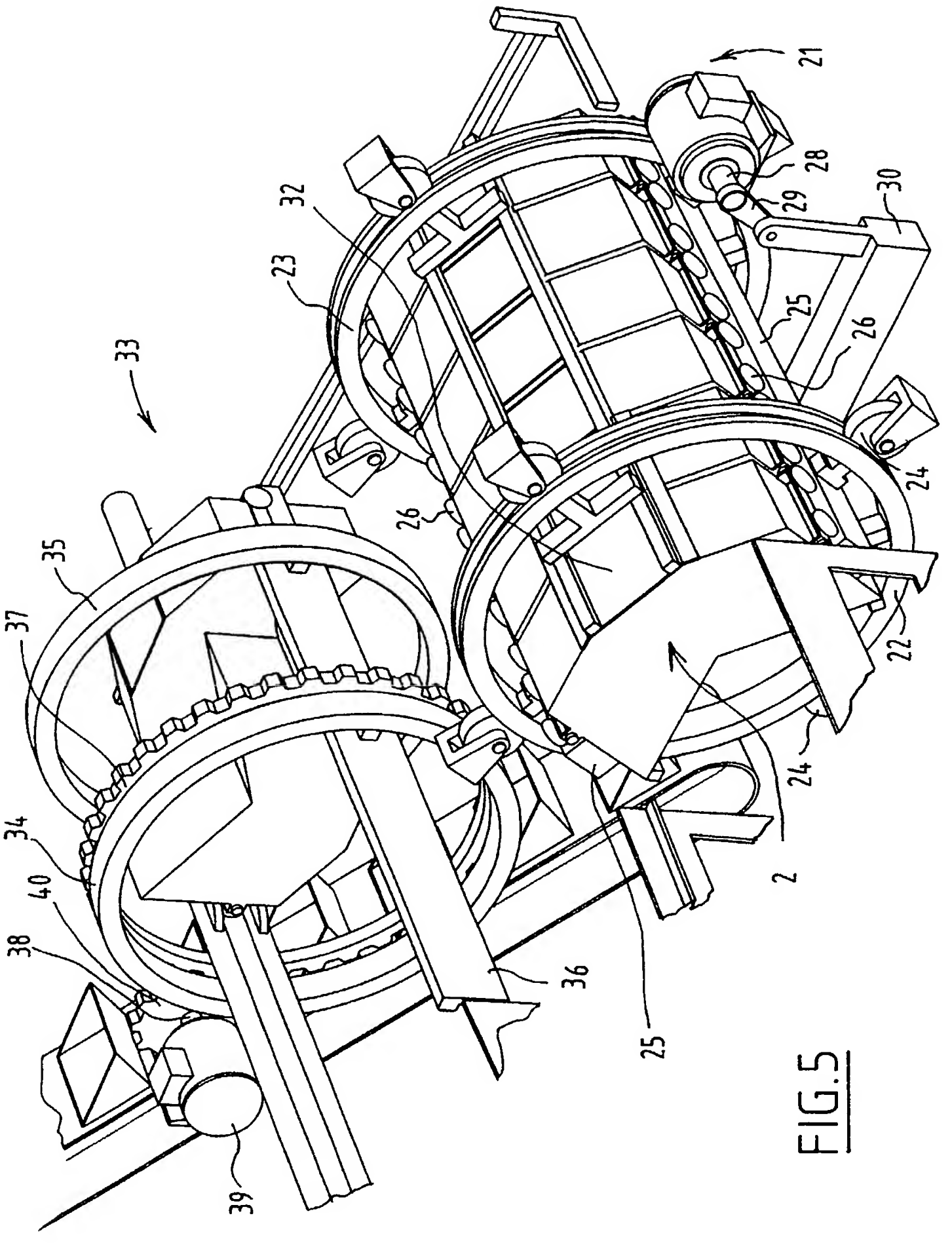


FIG.5

#6

Banner & Witcoff Ref. No. 000771.00031
Client Ref. No. G/AH59/MvZ/3

SOLE DECLARATION FOR PATENT APPLICATION

As the below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name;

I believe I am the original, first and sole inventor of the subject matter which is claimed and for which a patent is sought on the invention entitled METHOD AND APPARATUS FOR TREATING GOODS, the specification of which

☐ is attached hereto.

☒ was filed on March 15, 2002 as Application Serial Number 10/088,343and was amended on March 15, 2002 (if applicable).

☒ was filed under the Patent Cooperation Treaty (PCT) and accorded International Application No. PCT/NL00/00660, filed September 18, 2000, and amended on November 15, 2001 (if any).

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I hereby acknowledge the duty to disclose information which is material to patentability in accordance with Title 37, Code of Federal Regulations, §1.56(a).

Prior Foreign Application(s)

I hereby claim foreign priority benefits under Title 35, United States Code, §119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application(s) for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

Country	Application No.	Date of Filing (day, month, year)	Date of Issue (day, month, year)	Priority Claimed Under 35 U.S.C. §119
Netherlands	1013067	16 September 1999		yes

Prior United States Provisional Application(s)

I hereby claim priority benefits under Title 35, United States Code, §119(e)(1) of any U.S. provisional application listed below:

U.S. Provisional Application No.	Date of Filing (day, month, year)	Priority Claimed Under 35 U.S.C. §119(e)(1)

Prior United States Application(s)

I hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United Code, § 112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, §1.56(a) which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

Application Serial No.	Date of Filing (Day, Month, Year)	Status - Patented, Pending, Abandoned

[redacted]

Banner & Witcoff Ref. No. 000771.00031
Client Ref. No. G/AH59/Mv2/3

Power of Attorney

And I hereby appoint, both jointly and severally, as my attorneys, all Banner & Witcoff, Ltd. attorneys indicated thereon under PTO Customer Number #22907, with full power of substitution and revocation, to prosecute this application and to transact all business in the Patent and Trademark Office.

All correspondence and telephone communications should be addressed to:

Banner & Witcoff, Ltd.

Customer Number: 22907 (WDC)

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

1-00

Signature _____ Date August 7, 2002

Full Name of Inventor: PETERS (Family Name) Antonius (First Given Name) L. F. (Second Given Name)

Residence (city, state or country) St. Michielsgestel, Netherlands NLX Citizenship Dutch

Post Office Address Hezelaar 4, NL-5271 SK, St. Michielsgestel, Netherlands

[redacted]